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**37.1 STRUCTURE SELECTION**

Most pedestrian bridges are located in urban areas over divided highways, expressways and freeway systems. The structure selection is made on the basis of aesthetics and economic considerations. A wide variety of structure types is available and the selected structure type is recognized by its superstructure. Some of the more common selections are as follows:

Concrete Slab  
Prestressed Concrete Girder  
Steel Girder

Several pedestrian bridges are a combination of two structure types such as a concrete slab approach span and steel girder center spans. One of the more unique pedestrian structures in Wisconsin is a cable stayed bridge. This structure was built in 1970 over USH 41 in Menomonie Falls. It is the first known cable stayed bridge constructed in the United States. Generally, pedestrian bridges provide the designer the opportunity to employ long spans and medium depth sections to achieve a graceful structure.

**37.2 SPECIFICATIONS AND STANDARDS**

The designer is encouraged to refer to the following related specification:

"Standard Specifications for Highway Bridges"

For additional design information, refer to the appropriate Bridge Design Manual chapters relative to the structure type. Recommended maintenance vehicle design loading is given in Chapter 24.0 - Steel Girder Structures.

On Federal Aid Structures FHWA requests a limiting gradient of 8.33 percent on ramps for pedestrian facilities to accommodate the physically handicapped and elderly as recommended by the "American Standard Specifications for Making Buildings and Other Facilities Accessible to, and Usable by, the Physically Handicapped". This is slightly flatter than the gradient guidelines set by AASHTO which states gradients on ramps should not be more than 15 percent and preferably not steeper than 10 percent.

The minimum cross-sectional width of ramps is based on the type, volume, and direction of pedestrian traffic. In general, the minimum width provided for pedestrians is sufficient to accommodate wheelchairs if greater than 3' (900 mm) for one-way ramps and 5.5' (1650 mm) for two-way ramps.

In addition, ramps should have rest areas or landings 5' to 6' (1.5 to 1.8 m) in length which are level and safe. Rest area landings are mandatory when the ramp gradient exceeds 5 percent. Recommendations are that landings be spaced on one-way ramps at 30' (9 m) intervals and that landings be spaced on two-way ramps at 60' (18 m) intervals, as well as wherever a ramp turns. These values are limited to gradients of 8.33 percent on pedestrian ramps. Also, ramps are required to have handrails on both sides. See Standard 37.1 for handrail location and details.

- | Minimum vertical clearance for a pedestrian overpass is 17'-3 (5.25 m). Horizontal clearance is provided in accordance with the requirement for the class of highway involved.

**37.3 PROTECTIVE SCREENING**

Protective Screening is recommended on all pedestrian overpasses due to the increased number of incidents where objects were dropped or thrown onto vehicles traveling below. Several types of screening material are available such as aluminum, fiberglass and plastic sheeting, and chain link type fencing. A study of the various types of protective screening available indicates that chain link fencing is the most economical and practical for pedestrian overpasses. For recommended application refer to Standards 37.1 and 37.2.

The top of the protective screening is enclosed with a circular section in order to prevent objects from being thrown over the sides and to discourage children from climbing on the top. The opening at the bottom is held at a 1" (25 mm) clearance to prevent objects from being pushed under the fence.

| The core wire of the fence fabric shall be a minimum of 9 gauge (.148 inch) thickness,  
| galvanized and woven in a 2-inch mesh. A 1-inch mesh may be used in highly  
| vulnerable areas. A vinyl coating may also be used for aesthetic purposes. Add an  
| STSP to the contract if these additional features are used.